WHAT IS CLAIMED IS:

1. A cambered vane for use in a variable geometry turbocharger comprising:

an inner airfoil surface;

an outer airfoil surface oriented opposite the inner airfoil surface, the inner and outer airfoil surfaces defining a vane airfoil thickness;

a leading edge positioned along a first inner and outer airfoil surface junction; and

a trailing edge positioned along a second inner and outer airfoil surface junction;

wherein the vanes are positioned concentrically around a turbine wheel in the turbocharger, the inner airfoil and outer airfoil surfaces define a camberline positioned therebetween that extends from the leading edge to the trailing edge, and wherein the camberline includes a curved section along a substantial length of the vane between the leading and tailing edges, the curved section having a measure of curvature that is within 75 to 125 percent of a vane placement diameter defined by the concentric placement of vanes around the turbine wheel.

2. The vane as recited in claim 1 wherein the vane camberline curved section measure of curvature is within 90 to 110 percent of the vane placement diameter.

3. The vane as recited in claim 1 wherein the outer airfoil surface comprises a continuous convex-shape, and the inner airfoil surface comprises a continuous concave shape.

4. The vane as recited in claim 1 wherein the outer airfoil surface comprises a continuous convex shape and the inner airfoil surface includes a planar section adjacent the vane leading edge.

5. The vane as recited in claim 4 wherein the planar section comprises no more than about 35 percent of the total vane length as measured by a straight line taken between the vane leading and trailing edges.

6. A turbocharger assembly comprising:

a turbine housing having an exhaust gas inlet and an exhaust outlet, and a volute connected to the inlet;

a turbine wheel carried within the turbine housing and attached to a shaft;

a plurality of vanes pivotably disposed within the turbine housing between the exhaust gas inlet and turbine wheel, each vane comprising:

an inner airfoil surface oriented adjacent the turbine wheel;

an outer airfoil surface oriented opposite the inner airfoil surface, the inner and outer airfoil surfaces defining an airfoil thickness;

a leading edge positioned along a first inner and outer airfoil surface junction;

a trailing edge positioned along a second inner and outer airfoil surface junction;

wherein the inner and outer airfoil surfaces define a vane camberline extending along a vane length extending between the leading and trailing edges, wherein the vane camberline includes a curved section along a substantial length thereof having a measure of curvature that is within 75 to 125 percent of a vane placement diameter as defined between diametrically opposed vanes.

7. The turbocharger assembly as recited in claim 6 wherein the vane camberline curved section measure of curvature is within 90 to 110 percent of the vane placement diameter.

8. The turbocharger assembly as recited in claim 6 wherein the outer airfoil surface comprises a continuous convex-shape, and the inner airfoil surface comprises a continuous concave shape.

9. The turbocharger assembly as recited in claim 6 wherein the outer airfoil surface comprises a continuous convex shape and the inner airfoil surface includes a planar section adjacent the vane leading edge.

10. The turbocharger assembly as recited in claim 9 wherein the planar section comprises no more than about 35 percent of the total vane length as measured by a straight line connecting the vane leading and trailing edges.

11. A method for making an aerodynamic vane for use within a turbocharger, the aerodynamic vane comprising a length defined between vane leading and trailing ends, and a thickness defined between vane outer and inner airfoil surfaces, the method comprising the steps of:

determining the placement position of a number of aerodynamic vanes concentrically around a turbine wheel disposed within a turbocharger, such placement position defining a placement diameter around the turbine wheel; and

configuring a vane outer airfoil surface and a vane inner airfoil surface such that a substantial portion of a camberline positioned between the outer and inner airfoil surfaces and running between the leading and trailing edges has a measure of curvature that is within 75 to 125 percent of the placement diameter.

12. The method as recited in claim 11 wherein during the step of configuring, the camberline curved to have a measure of curvature within 90 to 110 percent of the placement diameter.

13. The method as recited in claim 11 wherein the vanes are pivotably attached to the turbocharger by posts and the diameter corresponds to the placement position of the posts in the turbocharger.